Title:	Elements of Effective Writing
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Syllabus: Writing Courses for Nuclear Criticality Safety Division

Course One: Elements of Effective Writing
9 a.m. to 11 a.m.

9:00   Instructor introduction
9:02   Introduction (why I am here and why students are here)
9:05   Overview of all six courses and an outline of today's course
9:10   What to get out of a review
9:15   What makes for effective writing?
9:20   How to approach writing
9:25   The free-form-writing approach
9:30   **Exercise on free-form writing (10 minutes)**
9:40   **Review and discuss free-form writing exercise**
9:50   How does the free-form writing approach help craft NCS documents?
9:55   Ensuring a document is complete
10:00 **10-minute break**
10:10 How to answer questions/provide information related to instructions
10:15 Ensuring a document is cohesive
10:20 **Exercise on cohesion (5 minutes)**
10:25 **Review and discuss exercise on cohesion**
10:30 Ensuring a document is clear
10:35 **Exercise on clarity (5 minutes)**
10:40 **Review and discuss exercise on clarity**
10:45 Putting it all together—the editorial process
10:50 Breakdown of the next writing class
10:55 Comments and questions
11:00 Class dismissed

LECTURE FOR COURSE ONE:
ELEMENTS OF EFFECTIVE WRITING

Instructor Introduction

- **SLIDE 1 (TITLE SLIDE)**

- Good morning, and welcome to the first of six classes on facets of successful technical writing.

- My name is Octavio Ramos, and I have been a writer for approximately 40 years now. I have been fortunate enough to making writing a career, and recently I celebrated 30 years at Los Alamos National Laboratory as a technical writer-editor. For the past 10 years, I have taught various writing courses to my writer-editor colleagues, as well as Laboratory staff members interested in topics such as proposal writing, interviewing skills, basics of grammar, and grant writing.

Introduction

- Before we start on this morning's course, I wanted to set the scene regarding why you are here and why I am here. In addition, I would like to explain what we have planned for you in the upcoming weeks.

- I teach my classes more like **workshops**, so be prepared to work on some **exercises** and afterward **discuss** your work. We learn by doing, so please make an **effort** to work on these exercises.

- Crafting short classes on such **huge** topics is quite a challenge. Understand that what we provide for you in the weeks to come is just the tip of the iceberg. There are **full-semester classes** dedicated to these topics, and what we've done is **distill** information to an **introductory** level.

- Please feel free to **interrupt** me at any time to ask **questions**. Ask me to slow down if you feel I am **going too fast** or need further **clarification** on something I've said.

- So, why are here today? Several months ago, management from your organization contacted my group, Communication Arts and Services, and asked for **training assistance** associated with technical writing and editing.

- After some **discussions** with some folks who write the documents and those who review the documents, my group assembled a team of writer-editors to **teach** facets of basic technical writing and editing.

- My colleagues Marisa Lamb and Rebecca Brug and I have developed six courses that will provide you with an overview of effective techniques designed to improve your writing and editing skills. The objective of this training is to give you the **fundamental skills to write and edit effectively** so that your documents can flow smoothly through the review process, where the emphasis should be on **content** rather than **editorial review**.

- Before I go any further, I would like to perform a quick **audience analysis**. I have two basic questions for you.

- **SLIDE 2**

  – How many of you have taken a technical writing class? Can you share your experiences with such courses? Did they help **improve** your writing, even a little bit?

  – How many of you **want** to be here?

- Now here's a critical question for you: What do you wish to get out of these courses?

- The reason I ask these questions is to get a better feel from my **audience** as to what to expect. I hope that by the time we are done with these courses you will **feel better** about your own basic skills and that my colleagues Marisa and Rebecca and I have given you some knowledge that will **improve** the documentation produced as a whole for the members of the Nuclear Criticality Safety Division.

Overview of Courses

- **SLIDE 3**

- There will be **six courses**, each one taught twice a week. We offer this twice-a-week schedule to ensure that if you **cannot** attend one day you may be able to make it on the next day of the week. We also want to give as many folks as possible the opportunity to attend these courses.

- Of the **six** courses, I will teach **three**. My objective for the three courses is to provide you with effective **writing strategies**. Topics will address issues with cohesion, clarity, sentence structure, and rhetoric.

- One course will cover topics in logic, such as how to order ideas, what to include and what not to include in an argument or justification, how to write a persuasive case, and fallacies that can muck up your presentation.

- Grammar classes will cover basic grammar faults, but the emphasis will be on why things work rather than simply applying "rules."

- To break things up, I will teach a course on writing and then next week one of my colleagues will teach a course on grammar. It will go back and forth like this, giving you an overview of writing from the **macro** to the **micro**, until we are done.

Today's Course

- **SLIDE 4**

- Today's course is titled "Elements of Successful Writing." Topics I intend to introduce include

  - writing effectively,

  - using a free-form approach to write effective first drafts,

  - writing to completion—making sure you answer the question,

  - applying techniques that make your work cohesive,

  - applying techniques that make your work clear—that is, easy to understand, and

  - applying editorial techniques to make your documents come together.

- Rather than me lecture to you nonstop for two hours, I have instead created a workshop-like atmosphere where you will engage in various exercises designed to help you learn the basics of effective technical writing. We will learn by taking knowledge and applying it. Where possible, I am using examples taken from documents directly from your organization.

What to get out of a review

- I likely share the same original experiences as you did in school. How many of you have negative tales about the dreaded "English Teacher"? How many of you learned that writing was just too difficult because of all the grammar rules?

- It is likely that there's a similar relationship between the subject-matter experts who craft the documents in this organization and the folks tasked with reviewing these documents. In my initial discussions with the subject-matter experts, there was a desire for improvement in writing, but some writers also expressed that **consistency** among reviewers would be excellent as well.

- Consistency among reviewers should **not** be a primary concern. Let that statement sink in—this should **not** be a concern.

- Poor writing—that is your **primary concern** as a subject-matter expert who prepares Criticality Safety Evaluation Documents.

- **SLIDE 5**

- Rather than **battle** with reviewers about what can be perceived as stylistic changes, instead think about the following:

- Nobody has ever enjoyed receiving a document covered in an evaluator's red ink.

- As a subject-matter expert who must write documents, particularly if you are new, you must develop a thick skin. Moreover, you must **alter** your thinking from a confrontational one of you vs. the reviewer to the reviewer being your best friend.

- I've been there. You want to know what's worse that getting corrections and comments? How about not getting any at all and being summarily rejected? My first years of attempting to publish my work were met with simple letter-form rejections without comments. It wasn't until later that editors started marking up my copy for possible publication. At first, I was angry with all the red ink. Then, I realized—if I work with the editor, I likely will get published. And that's what happened.

- So, when you receive your paper, which looks like a bloody mess, I want you to take a moment. Put the review copy in a drawer. Walk away—go do something else, get a glass of water or a cup of coffee.

- When you've cooled off, sit down and look through the comments. Change your mindset to the following: It's not catching a reviewer misinterpreting what he or she marked up, it's the fact that the reviewer marked it up in the first place. **Right** or **wrong** has nothing to do with anything. It's the fact that the reviewer stumbled over what you've written in the first place.

- If the reviewer stumbled and misinterpreted what you wrote, what are the chances others will do the same?

- Doesn't much matter about right or wrong, then, does it?

- **SLIDE 6**

- Take a moment and imagine what it's like to be a reviewer. Understand that this person is your advocate, someone who is trying to make your document stand up to the scrutiny of others, particularly the user or operator and of course regulators and other evaluators.

- **SLIDE 7**

- So, what should be your goal, as a writer of CSEDs and other documents?

- Although your superficial goal is to get passed the reviewer as unscathed as possible, it is not your underlying goal.

- The underlying goal, the most important objective, is to get through to the user or operator who will be using your document as a guide. You want to ensure that there is no misinterpretation of what you have written.

- When you submit a document for review, your primary responsibility is to be as complete, clear, and concise as possible. The reviewer should come back to you with content reviews, not stylist ones. If the review comes back with stylistic changes, you have failed in your task of writing a complete, clear, and concise document.

- A reviewer should not have to address confusion, order of ideas, sentence structure, and other logical, rhetorical, and grammatical faults. That's your job.

- If an argument, justification, or explanation if flawed, the reviewer should be able to point to the exact place where your **content** failed. The reviewer should not have to address a muddled or poorly written paragraph.

What makes for effective writing?

- **SLIDE 8**

- What would you say makes for effective writing? Is there a magic formula to achieve good writing?

- I do in fact have a secret formula, but it's likely nothing you all have not thought about. Other writing instructors have likely touched upon what I am about to describe to you.

- Effective writing comes down to three elements that I like to call the Three Cs:

  – Complete

  – Cohesive

  – Clear

- **That's it!** If you can acquire some skill in achieving these three things, you will have a significant **advantage** over much of the writing population, even against the "English Teacher" or the curmudgeon reviewer.

- By keeping these three elements in mind in every paragraph and every section you complete, you are ensuring that a reviewer comes back with **content-driven** comments rather than **stylistic** ones.

- The end goal goes beyond the reviewer: it is **persuasion**. The strength of your arguments and explanations—they are all complete, with cohesive structures and clear and understandable language—make it easier for the reviewer, user or operator, and other regulators/evaluators to come to the conclusions you have come to.

- **SLIDE 9**

- The process of technical writing is described pretty well by engineer and writer Atul Mathur. Note the first part of his quote, the part about "understanding technical language." Because of your area expertise in Nuclear Criticality Safety, you have a significant advantage over someone like me. It would take me perhaps months or years to gain even a foothold in understanding, much less acquiring the level of expertise you all possess.

- However, it's the second part of the quote that we are concerned with for the next several weeks of coursework. To reach an end user or operator in writing, you must be able to express yourself completely, concisely, and cohesively. You must work to minimize opportunities for **misinterpretation**. Again, that's why reviewers are in place—they are there as a **final check** to ensure completeness, conciseness, and cohesiveness.

- Communicating often-complex and technical concepts and ideas is no easy task. It falls on you as the subject-matter expert to apply effective logical and rhetorical techniques so that what you are writing gets through to the end user or operator. Muddled language, complex sentence structures, and poorly ordered ideas are the anathema of effective writing.

- As I have said before, an underlying benefit of effective writing is **persuasion**. The first step in persuasion is **understanding**. We achieve understanding through effective writing. The more a reader understands, the more amenable they will be to your point of view and to your ideas.

- Such amenability has distinct benefits. In the world of fiction writing, it could make you a best-selling author. In the world of proposal writing, it could get you funding. **And in the world of Nuclear Criticality Safety, it could help get your documents reviewed and approved much easier.**

- Before we delve deeper into the facets of complete, cohesive, and clear, let's talk about the writing process itself.

How to Approach Writing

- I have been writing for a long time, about 40 years or so. Even today, I find writing a challenging process—it has never been truly easy, although it does get easier with experience.

- During this time, I have developed a methodology to approach writing anything. Let me discuss this methodology. Take what you like from it, discard what you don't think is applicable to you, and make this methodology your own.

- **SLIDE 10**

- The first thing to keep in mind: It is always possible to edit something you've written, but you cannot edit a blank page.

- If you are new to technical writing, don't **bother** waiting for **perfection**. If you are a veteran of technical writing, you know you can never achieve **perfection**. Attempting to achieve perfection will only build up the pressure and you won't be able to write a word. You will find yourself staring at an empty computer screen or a blank sheet of paper. Everyone's heard of writer's block, when a writer has difficulty producing any written work.

- Sitting down and actually writing anything can create a lot of stress and frustration. The key to making writing as easy as possible is to let it **flow freely**.

- When writing an initial draft of any piece of writing, write as freely as possible. Consider this your **first** of several drafts. As a first draft, your goal is to simply write out your ideas until the data-dump from your head has been transcribed to paper. Do not worry about audience, clarity, completeness, and so on. Yes, these things are likely to be in the back of your mind as you write, but the goal in a first draft is to write, write, write, without stopping, letting your ideas flow.

- Have you ever written a sentence, stopped, and then messed with it for a while? Have you noticed that the remainder of what was originally in your head that would naturally follow is now gone? It is likely this scenario that makes most writers frustrated when it comes to writing—and thus it is something to avoid.

- Say this until you believe it: **Writing is easy; editing is hard**.

- Overcoming this writer's block is easier when you are **prepared**. Before you start to write, look over the template you are using and look at the content that is expected of you. Research the technical details of this content, so that you can formulate in your mind the **justification** or **explanation** that will go into each section of the template.

- Once you have an idea of how you intend to organize your thoughts, you can begin to write. If you don't have a good idea about the content and its organization, it will show in your writing.

- Keep it pithy and provide only what is **expected** of you. Too much or too little technical information can lead to reader confusion. If you want, prepare a paragraph-by-paragraph outline of what you plan to say, compare it to the template, and then rework it so that you provide only what is asked of you. A proper outline will help you progress through a justification or explanation, so you do not get **bogged down** in extraneous details that really don't matter.

- And finally, when you start to write, let the writing flow freely from you. How do we do that? There's an approach known as free-form writing, which may help you with getting down an initial draft of what you are trying to document.

The Free-Form Writing Approach

- As I noted previously, writing can cause frustration and stress if you do not think it through first and you lack the information to get the facts down on paper in their proper order.

- Frustration often results because writers tend to **overthink** every word and sentence. By stopping the flow of ideas to work on a sentence, we tend to lose sight of the remainder of the idea.

- **SLIDE 11**

- Any Bruce Lee fans out there? How many have seen the movie *Enter the Dragon*?

- In that movie, Bruce Lee tells his student not to focus just on the moon or he will miss all that heavenly glory. The same holds true when we write a first draft. You must let your idea come out full formed, not stopping to refine or reword anything. That comes later. When writing the first draft, you must in essence perform a data dump of what you have compiled in your head onto the computer screen or pieces of paper. Once that is done, the **refinement** can commence.

- To put the free-form-writing approach into action, I have prepared an exercise for all of you.

- **PLEASE GO TO EXERCISE 1 IN THE HANDOUT SHEET. READ THE INSTRUCTIONS ON EXERCISE 1 AND ASK IF THE PARTICIPANTS HAVE QUESTIONS. GIVE THEM 10 MINUTES TO WRITE INDEPENDENTLY.**

- **REVIEW AND DISCUSS EXERCISE. QUESTIONS FOR THE CLASS TO GET THE CONVERSATION GOING:**

  - ✓ Read what you have written. Is it a good beginning?

  - ✓ Did you notice that doubt continued to creep into your head as you were writing? This is natural—you goal is to suppress such doubt and continue to write.

  - ✓ The prompts "I am stuck" and "What else?" are little notes to yourself designed to keep you moving.

  - ✓ How do you feel, now that you have written in a way you have likely not done before? Is writing at least a little less intimidating now?

- If you can exercise this initial-draft approach, you will be further along as a writer than even some veteran writers who still struggle over refining a paragraph they have just written rather than having a complete first draft ready for refinement.

- I say it again: **Writing is easy; editing is hard**.

How can This Approach Help You with NCS documents?

- Having material rejected consistently could definitely have **hindered** the ability to express yourself. All of us have a certain amount of self-criticality, and it's for this reason than rather than express ourselves without self-correction we instead stop and correct even the smallest typo or less-than-coherent thought.

- Take a look at what you wrote the last 10 minutes. Yes, it's ugly. Yes, it makes you inner Grammar Nazi cringe and prepare for war.

- However, take a closer look at what you've written. Does one idea flow relatively well from one to the next? Are the sentences relatively straightforward and clear? Bottom line: Would a second pass likely create a better piece of writing that would have been created by the stop-and-correct method? That is, would the content be stronger when applying this free-form method?

- This is the main reason why you should use the free-form method when preparing any document. By expressing your ideas without restraint, you will spend less time revising.

- Keep this document and put it in a place where you can retrieve it with ease. Every time you get ready to write a document, pull this one out and give it a quick look to remind you about free-form and its benefit when it comes to putting down your thoughts efficiently and effectively.

Writing with Purpose

- Okay, now that we have a new way to create first drafts, let's talk about writing with purpose. The idea here is to have some tools are our disposal when tackling that first draft.

- Let's go back to the Three Cs.

- By far the biggest of the three Cs is **completeness**—is a document complete?

- Nothing is more frustrating for an end user or operator—or a reviewer, for that matter—than an **incomplete** document.

- Completeness is more than simply making sure you have filled in all the components that make up a document. You must ensure that every section in your document has all the pertinent information for the reader. If this is the case, a reviewer need only review your content, rather than point out what your document is missing. An operator should not be put in a position where she or he must look for anything—it's all there, in the document.

- I noticed that in many of your documents there are references to other documents, in some cases using electronic bookmarks. Be sure that when preparing your documents, you make it as easy as possible for a reviewer to have access to such documentation—a hotlink works really well, but at least provide a reference so that the document can be found. A reviewer will likely not work too hard to find such documents if they are referenced incompletely or incorrectly; instead, the reviewer will simply reject your document.

- **SLIDE 12**

- Let's take a look at an example of a section taken from one of your organization's CSEDs. Please read it (**give them a few minutes**).

- Now, I realize that this example may not be in your specific area of expertise, but would you consider these two paragraphs as complete? In your opinion, what is missing?

- A key component is preparing such documents is the notion of **attribution**. Attribution serves in part to justify why things are done the way they are done. Attribution also assigns a **who** to the **what**.

- **SLIDE 13**

- Let's look at this version of the example. Note the pieces in **bold**. Now, is this example better than the previous one? Can you begin to discern how lacking specificity or detail makes a document read as incomplete? Do you see how inserting attribution helps make the document complete?

- When checking a document for completeness, always keep in mind your audience. Although a deeper review falls under the purview of other components we'll discuss next, such as cohesion and clarity, always keep in mind that the expression of ideas matter when it comes to a document's completeness.

- **SLIDE 14**

- Take a look at this version of the two paragraphs, with key edits or queries shown in red.

- Note the first one: Can a division evaluate? No, that's why there's that change.

- The PF-4 query is one for audience. Those working in this area know all about PF-4, but do people outside this division know? Does this need to be defined? These are the sort of considerations that are expected when checking for a document's completeness.

- The last edit at the bottom is one where it sounded like too much detail, leading to legalese-like redundancy. Does the edit work better or should it be left alone? The call belongs to the subject-matter expert who prepares the document in the first place.

Answer the Question

- Another facet of completeness is making sure you answer each question found on the template. Read the section in the template and answer the question, if it is a question, or ascertain what information it is asking of you, if it is phrased as an instruction.

- There are various ways to address the content found in each section of the template. Here is one possible way to create a structure for how you answer questions or provide information related to an instruction.

- **SLIDE 15**

  – **First**, **restate** the question or the instruction as an **introductory statement**.

  – **Second**, provide a topic sentence that summarizes how you intend to address the question or **carry out** the instruction. There is no level of detail in this sentence. It is a summary of what you intend to do or how someone else should do it.

  – And **third**, once you have "set the scene," provide **details** of **how** and **why** related to the question/instruction and how it is to be addressed/carried out.

- Be sure to include only details related to answering the question or instruction. If the information you provide does not address the how or why of how it is answered or carried out, why then should you include it?

- Such extraneous information only makes the document more complicated and such additions are likely to fall under more scrutiny, scrutiny not needed in the first place. Avoid making it an issue for yourself—yes, you have expertise, so show it by **minimizing** what you say and **how** you say it.

- Think of each section as a self-contained narrative, a story with a beginning, middle, and end.

- With that in mind, structure your narrative much like a story, providing only those details necessary to make the section a standalone structure that is complete.

- **SLIDE 16**

What You Claim Matters

- Keep this mind as you prepare to fill in a template, be it for a CSED or any other type of document you have been asked to prepare: **Don't** address the content in a specific section just **"to get it done."**

- As you fill out a section, stop and consider the gist/intent of what you claim in that section. How does it affect the **other** claims in other sections found in the document?

- Remember, the document as a whole crafts **"a big picture."** If there are **ramifications** of a claim in a particular section on other sections of the document, you must address them. Only then is your document **complete**.

Things to Consider

- **SLIDE 17**

- In closing, consider the following when it comes to making a document complete:

- Follow **instructions**—use the template and the writing guide, these are there to assist you. If the template or guide confuses you, seek clarification from a veteran analyst or a reviewer.

- A question asked **ahead of time** pays dividends down the road, particularly when it comes to the review process. There are no dumb questions—internalize this idea and be sure not to hesitate when seeking help.

- I would not recommend ever using boilerplate, but I do understand its role in this organization. So, of you intend to use boilerplate, make sure that it corresponds to your specific document.

- What do I mean? I mean that the claims within that boilerplate are in accordance with you own. Read the boilerplate and make sure what it says is in adherence with what you've said. Also, make sure that such boilerplate is current and that all its links and references are also current. **Outdated** boilerplate only weakens the new information you are providing.

- Check all the links in your document and make sure they are in working order. Check all references for completeness. It should be easy, if I am inclined, to look up a reference. How far I read is up to me, not you.

- If there are "holes" that you simply cannot address, be sure to call them out in the document. That way, a reviewer knows that you did not **omit** information. It makes it easier on the reviewer. If you can, **explain** how you intend to address these "holes" in a new draft.

- And finally, make sure that your document stands on its own. It has all the information it needs to be a standalone piece. It is at this point you know that your document is at last **complete**.

Breaking it Down

- Let's take a look at the introductory section of the review guide and break it down so we can "answer the question."

- **SLIDE 18**

- Here we have section 5.1.1. Introduction. The paragraph below provides guidance on how to fill out this section.

- Let's break down the guidance in outline form, so we get an idea of what is expected of us as writers when addressing this section.

- **SLIDE 19**

- Note that the first pieces of guidance are designed to guide you with respect to audience and level of detail.

- The rest of the guidance can be broken down into paragraphs.

- Note the "if any" parenthetical statements. This means that if you don't have one of these, don't include it. Just because other documents have, say limits or controls, does not mean that your document must also have them. Only include if your evaluation includes such features.

- Outlining like this enables you to have a "plan of attack" when it comes to writing a section of a CSED, or any other type of document with guidance. Remember, if the guidance does not ask for something, don't include it. Additional information only opens up your document to undue scrutiny and weakens the content that has been asked of you.

Cohesion

- Next up, let's look at cohesion. Can someone tell me what cohesion means, particularly as it pertains to writing?

- **SLIDE 20**

- Cohesion is how one sentence flows and leads into another. It is a logical order of things that facilitates the understanding of a process, explanation, or argument. Lack of cohesion makes it harder for a reader to follow ideas, particularly complicated ones.

- **SLIDE 21**

- Let's take a look at an example. Please read it (**give them a few minutes**). Would you say it is cohesive—do you have a basic understanding of what it trying to be explained.

- **SLIDE 22**

- Now read this version **(give them a few minutes to read this version)**. Do you see any differences?

- **SLIDE 13**

- Let's first look at this description's overall structure. See that each paragraph addresses one thing rather than combining both into one? The reasoning behind this type of structure is to separate concepts/ideas. Such separation enables the reader to "digest" pieces of information. Such "digestion" facilitates comprehension.

- Note how each sentence gets started. This type of opening goes all the way back to basic essay writing: It's called a topic sentence—it introduces what is going to be discussed.

- Note the use of bullets to organize content that goes together. Each bullet introduces on new subtopic that corresponds to the general topic.

- Note the numbers used to break up the components and processes to minimize confusion. Each component or process is set off by its own number.

- Note the use of repetition to ensure ideas are not lost. It is okay to reuse words to ensure cohesion from one sentence to another.

- Note the use of logical bridges, such as what it called a "conditional," the use of the word "if."

- Note the use of the conjunction "and" to indicate the end of an idea in each paragraph.

Strategies to Achieve Cohesion

- **SLIDE 24**

- Wherever possible use **synonyms** to maintain cohesion. For example, read the sentence below. "Rats" and "large rodents" are synonyms that help maintain the subject's cohesive **thread**.

- Use **pronouns**. For example, read the sentence below. The pronoun they goes back to "operators." Operators serves as what is called an "antecedent." Each pronoun must have an antecedent. Be careful with this type of writing, as there can be confusion with respect to antecedents, particularly when using pronouns such as "it." In this case, it's easy to find the antecedent, as is must be (1) human rather than a thing and (2) plural.

- **SLIDE 25**

- Use the **passive voice**. One grammar myth is that the passive voice should be avoided. The true intent of this is that **overuse** of the passive voice should be avoided.

- Judicial use of the passive voice can in fact achieve cohesion. Read the first sentence. Now read the second. See the difference? Note how the pronoun "she" is closer to its antecedent and also how the structure maintains the cohesive thread.

- **SLIDE 26**

- When possible, consider using signal words or phrases and link sentences and even paragraphs together by indicating the relationship between ideas. This rhetorical approach is known as "metadiscourse." Types of relationships can be as contradictions, cause and effect, reason and conclusion, elaboration, and addition. Note the signal words and phrases that indicate the relationship.

- **HAND OUT EXERCISE on cohesion.**

- **Let's do an exercise on cohesion. Read each paragraph set. See if you can find a way to introduce cohesion into the choppy sentence structure.**

- **Give the class 5 minutes. Discuss with class for 10 minutes.**

Clarity

- And finally, let's have a look at the idea of clarity. Anybody want to venture a definition of clarity when it comes to successful writing?

- Clarity begins at the word level and spreads through sentences and paragraphs into sections and complete documents.

- Clarity ensures that readers understand the essence of your explanation or argument. The idea is to have as little misunderstanding as possible in your document. For NCS, clarity is the essence of persuasion, so that a user/operator will understand what is expected of him or her after reading a document you have prepared.

- **SLIDE 27**

- There are six strategies to ensure clear writing:

- **Write simply**: Even sophisticated readers find it a chore to get through turgid prose. Most are likely to give up and reject your document for lack of understanding, or worse, misunderstanding. Yes, your work must contain specialized vocabulary specific to your field. However, don't compound the issue with other jargon, complicated sentence structure, passive voice, and longwinded sentences.

- **Use titles that say something.** Effective titles help you organize your material so that you can subdivide it into manageable pieces. The title gives the reader a clue about what the section is all about.

- **Use short sentences whenever possible.** S-V-O is the mantra of many writers. This means Subject-Verb-Object. You can vary this, but don't get carried away. Each sentence should be long enough to do its job yet short enough to be self-inclusive and easy to understand and digest.

- **Choose shorter words**—we'll talk more about this during the third part of this course. In brief, why use usefulness, unadorned, and subsequent to when you could use value, plain, and after.

- **When possible, use active voice.** There are reasons to use passive, but too much of it bogs down paragraphs and makes reading a chore. Do not overuse the **passive voice**.

- **Use markers.** Markers are transition words that help readers follow ideas from sentence to sentence. Markers include words such as although, while, whereas, in addition, and furthermore. Others include however and conversely. Such markers add cohesion, which enhances clarity by serving as guideposts along the narrative road so your reader does not get lost or suffer accidents known as misunderstandings.

- Let's try some exercises on clarity, so we gain an understanding of unclear writing and how to fix it.

- **HAND OUT EXERCISE on clarity. Give class 5 minutes to work on it. Discuss with class for 10 minutes, showing the inherent flaw in each sentence (too many prepositional phrases, passive voice, and so on).**

Putting it all Together—The Editorial Process

- Remember what I said earlier: **Writing is easy, editing is hard**. Once you have written your first draft, it is time to revise it. More than likely, you first draft is complete, but never assume it is **complete**.

- In many of the documents I was sent for review, a common problem is lack of completeness. Keep this always in mind as you draft each section of your document: Am I answering the core question of this section? Anything else that you write in this section has no use and will only serve to clutter your document. Always answer the question and then—**stop**!

- Okay, let's talk about the editorial process. When people think of editing, they think of correcting grammar and punctuation. However, the editorial process itself simply comes down to one concept: revision.

- **SLIDE 28**

- There are no real limits to how many times a piece of writing can be revised. Note also that some revisions will be completed much faster than others. However, the following is a basic process for revision:

  - ✓ **Pass One: Is it complete?** Does your piece of writing have a beginning, a middle, and an end? Does it have all the components necessary to meet the requirements of a certain type of publication? Are there pieces of information that are missing and require your attention?

  - ✓ **Pass Two: It is self-contained?** Does your piece of writing limit itself to addressing one key theme? Is there tangential information that needs to be cut from it?

- ✓ **Pass Three: Is it grounded?** Read the document and assess each argument. Is it valid? Is it sound? Are there leaps in reasoning? Are you using fallacious reasoning? Will something raise doubt? If you have any such questions, work on streamlining your reasoning so that you minimize doubt and skepticism.

- ✓ **Pass Four: Is it concise?** Check the language now. Remove excessive wordiness, paragraph-long sentences, and jargon. Call out acronyms and word hard not to use so many that your document requires an acronym list. Check paragraph and sentence structure.

- ✓ **Pass Five: Is it compelling or persuasive?** Your piece of writing must provide the evidence in a **compelling** manner so that it is **convincing**. This is perhaps the most difficult characteristic of a piece of writing, but those who can provide persuasive arguments are likely to become recognized experts in their field much more quickly than those who cannot.

- ✓ **Pass Six: Grammar review**: Work through the document as if you were a copyeditor. Look for grammar faults that affect clarity in sentence structure. Misplaced and dangling modifiers, sentence fragments and comma splices, verbs turned to nouns, and wordiness are just some of the things you should look for.

- ✓ **Pass Seven: Proofread**. This review is meant to catch any last-minute typos or other grammar faults, although you should be open to anything that stands out as unclear. I live to proofread by reading the text aloud. If I stumble over something, it likely needs some attention.

- ✓ **Pass Eight: Peer review**. If you have the time, share your piece of writing with colleagues and really listen to their points. Even if their points are wrong, take away this one thing: They stumbled over your words, and you must address them because you don't want a cold reader to stumble over them in publication.

- ▪ At this point, you are likely thinking, "Why so many passes?" Although this process looks cumbersome, it is quite easy to execute. By limiting each pass to a particular issue, you can move through the process much faster, rather than trying to do everything at once.

- I realize that your organization is under tight deadlines from the Department of Energy. However, you should plan for revisions to minimize the possibility of rejection. Meeting a deadline means little if the document comes back for further revision, thus making more work, as likely other work has since come in.

Breakdown of Next Writing Class

- The course you will have next will focus on elements of grammar.

- When you next see me, I will immerse you into the world of logic and how it can strengthen claims, arguments, and explanations.

- **SLIDE 29**

- Open up to questions and comments.

- Dismiss class.

Course One
Elements of Effective Writing

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Communication Arts and Services

January 2020

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Quick audience analysis

- How many of you have taken a technical writing class?

- How many of you want to be here?

"I don't have time to read all these safety rules."

Course outline

- **Six courses total, with each course taught twice a week.**

- Three courses that cover writing strategies, with topics that address cohesion, clarity, logic, simplifying ideas, effective word use, and rhetoric and its purpose.

- Three courses cover facets of grammar, emphasizing why things work rather than simply applying "rules."

Today's class:
Elements of successful writing

Topics include

- elements of successful writing,

- a new way to write first drafts,

- ensuring a document is complete,

- developing cohesive sentences, and

- working toward clarity.

Think about it this way . . .

- Nobody has ever enjoyed receiving a document covered with an evaluator's red ink.

- Take a moment. . . .

- Read the editorial marks when you've cooled off.

- Remember this: It's not about the reviewer being wrong in his or her editorial evaluation . . .

- . . . it's that the reviewer stumbled over what you wrote in the first place.

Step into the reviewer's shoes

What a realist reviewer looks like.

RAMESESPROJECT.ORG

What's the goal?

- The **superficial** goal is likely to get through the **reviewer**.

- However, the **underlying** goal must be to get through to the **user/operator**.

- As a subject-matter expert, your principal objective is to craft a document that is reviewed for **content**, not for **poor writing**.

- A reviewer should not have to address confusion or order of ideas—that's **your** job.

The three "Cs"

- Complete
- Cohesive
- Clear

The end goal:

- Persuasion

The process of technical writing

"Technical writing involves two key competencies. The first is the ability to understand technical language; the second is being able to express that knowledge in a clear, concise, and coherent manner."

–Atul Mathur, engineer and writer

How to approach writing

- It is always possible to edit something you've written, but you cannot edit a **blank** page.
- Be **prepared**—have the content organized in your head before you start to write it down.
- Keep it **pithy** and provide only what is expected of you.
- Let it **flow** freely.

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Free-form writing a first draft

Is it complete?

The Nuclear Criticality Safety Division (NCSD) has reviewed the material recovery and repackaging (MR&R) operations in fissionable material operation (FMO) PF4-G139-02 conducted in Glovebox GB-139 in Room 126 of PF-4.

This evaluation was conducted and documented per format and content expectations. The NCS controls are to be implemented. The process description was verified, the normal and credible abnormal conditions were identified and agreed upon. The Operations Responsible Supervisor ensures that the criticality safety control set consisting of administrative controls and engineered controls is applicable, useable, unambiguous, and can be implemented effectively.

Is it complete now?

The Nuclear Criticality Safety Division (NCSD) has reviewed the material recovery and repackaging (MR&R) operations in fissionable material operation (FMO) PF4-G139-02 conducted in Glovebox GB-139 in Room 126 of PF-4.

This evaluation is conducted **in accordance with NCS-AP-004,** *Criticality Safety Evaluations* **[Ref. 1]** and documented per the format and content expectations **contained in CSED-TMPLT-19-2**. The NCS controls are to be implemented **per TA55-AP-522,** *Nuclear Criticality Safety Program at TA-55* **[Ref. 2]**. The process description was verified as accurate **by the Operations Responsible Supervisor**. The normal and credible abnormal conditions were identified and agreed upon **by the evaluation team, which was comprised of operations personnel, subject matter experts, and criticality safety analysts**. The Operations Responsible Supervisor ensures that the criticality safety control set consisting of administrative controls and engineered controls is applicable, useable, unambiguous, and can be implemented effectively.

A deeper read

Management within the Nuclear Criticality Safety Division (NCSD) have evaluated the material recovery and repackaging (MR&R) operations in fissionable material operation (FMO) PF4-G139-02 conducted in Glovebox GB-139 in Room 126 of PF-4 (does everyone know that this is the Los Alamos Plutonium Facility?).

This evaluation is conducted **in accordance with NCS-AP-004, *Criticality Safety Evaluations* [Ref. 1]** and documented per the format and content expectations **contained in CSED-TMPLT-19-2**. The NCS controls must be implemented **per TA55-AP-522, *Nuclear Criticality Safety Program at TA-55* [Ref. 2]**. The Operations Responsible Supervisor verified the process description as accurate. The normal and credible abnormal conditions were identified and agreed upon by an evaluation team consisting of operations personnel, subject-matter experts, and criticality safety analysts. The Operations Responsible Supervisor ensures that the criticality safety control set (which consists of administrative and engineering controls) is unambiguously applicable for effective implementation.

Answering the question

- **Restate** the question or what you need to provide as an introductory statement
- Provide a topic sentence that **summarizes** how you will **address** the question
- Include **only details** related to answering the question
- If the information has **nothing** to do with the question, why include it?

Answer the question, father paranoia!

What you claim matters

- Don't answer what a template's section expects of you just to "get it done."
- **Stop** and **consider** the gist/intent of what you claim in a section—how does it affect other claims in the document?
- If there are **ramifications** in other sections, take the time to **address** them.
- Ensuring that all sections craft a consistent **"big picture"** is a key facet of making sure a document is **complete**.

Things to consider

- **Follow** instructions—use the template and follow the writing guide
- Be sure that the boilerplate you use **corresponds** to your **specific** document
- Check **all** links to make sure they **work**
- Check **all** references for **completeness**
- If you must leave "holes" in the document, be sure to **call them out**
- Be sure your document **stands on its own**

Breaking it down

5.1 Independent Review

5.1.1 Introduction

Introductory material is very general in nature and not of technical consequence. The introduction should contain a statement of what is being evaluated. It should also contain enough information to let the reviewer know why the evaluation was performed. Statements regarding the limits, implementation of controls, and satisfaction of the process analysis requirement have been found to be beneficial to operations personnel, as well as other reviewers. To avoid classification concerns, the title of the evaluation is to be descriptive of the operation under consideration – but not reveal its location; there are other document elements, and writing style elements, that will provide the location of the operation.

Outline

Overall guidance

- Keep level general (technical details should be of no consequence)
- Keep the title of the evaluation descriptive of the operation under consideration, but do not reveal it location in this section.

- ✓ Paragraph 1: What is being evaluated and why?
- ✓ Paragraph 2: Explain in general the limits (if any) of this evaluation and why such limits were implemented.
- ✓ Paragraph 3: Explain any controls (if any) and why such controls were implemented.
- ✓ Paragraph 4: Explain how you satisfied the process analysis requirement (if any). Be sure to identify the requirement and provide an overview of what it is.

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Cohesion

- Simply put when it comes to effective writing, cohesion is how one sentence flows and leads to another.

- Lack of cohesion makes it harder for a reader to follow ideas, particularly complicated ones.

- Cohesion is the "glue" that enables a reader to follow your chain of thought, minimizing misinterpretation or confusion.

Is this example cohesive?

A typical modern catalytic converter has components that effect nitrogen oxides, facilitate the oxidation of carbon monoxide and hydrocarbons, and maintain the correct abundance of oxygen. The nitrogen oxides are reduced using a platinum catalyst, which facilitates their decomposition into nitrogen and oxygen. The carbon fragments are oxidized over a platinum/rhodium catalyst. The correct amount of oxygen is ensured by monitoring the amount of oxygen passing into the engine by incorporating into the catalyst a metal oxide that absorbs oxygen (by reacting with it to form a higher oxide) when the fuel mixture has too much oxygen and reverts to the lower oxide, releasing oxygen, when the mixture has too little.

Is this version cohesive?

A typical modern catalytic convertor consists of three key components: (1) a component that reduces nitrogen dioxides, (2) a component that facilitates the oxidation of carbon monoxide and hydrocarbons, and (3) a component that maintains the correct abundance of oxygen.

There are three stages of operation in such catalytic convertors.

- First, a platinum catalyst reduces nitrogen oxides. Such reduction facilitates their decomposition into nitrogen and oxygen.
- Second, carbon fragments are oxidized over a platinum/rhodium catalyst.
- And third, components ensure the correct amount of oxygen by (1) monitoring the amount of oxygen passing into the engine and (2) incorporating into the catalyst a metal oxide that absorbs oxygen (by reacting with it to form a higher oxide) if the fuel mixture has too much oxygen.

If the mixture has too little oxygen, then the metal oxide reverts to the lower oxide, thereby releasing oxygen.

Elements of cohesion

- Note the overall structure. Each paragraph addresses one thing rather than combining both into one. This is a separation of concepts/ideas that enables the reader to "digest" pieces of information. Such "digestion" facilitates comprehension.

- Each sentence provides a topic sentence, one that introduces what is going to be discussed.

- Bullets help organize content.

- Numbers break up components and processes to minimize confusion.

- Repetition ensures ideas are not lost. It is okay to reuse words to ensure cohesion from one sentence to another.

- Note the use of logical bridges, such as what it called a "conditional," the use of the word "if."

- Conjunctions like "and" indicate the end of an idea in each paragraph.

Strategies to achieve cohesion

- Use synonyms

Rats are dirty animals. These large rodents live in damp and dark places.

- Use pronouns

Operators must take safety training annually. They also must take security training every six months.

Strategies to achieve cohesion

- Use the passive voice (!)

Sue was a great student. Unfortunately, she was hit by a car and was unable to finish the quarter.

Instead of

Sue was a great student. Unfortunately, a car hit her, and she was unable to finish the quarter.

Use word guideposts

- **Contradiction**, which may be indicated by: *but, however, nevertheless, although, on the other hand,* etc.

- **Cause-effect**: *as a result, consequently,* etc.

- **Reason-conclusion**: *therefore, because, hence,* etc.

- **Elaboration**: *in other words, to put it simply, that is to say, for example,* etc.

- **Addition**: *additionally, moreover, furthermore, besides,* etc.

Six Strategies to Achieve Clarity

- Write simply.

- Use titles that say something.

- Use short sentences whenever possible.

- Choose shorter words.

- When possible, use active voice.
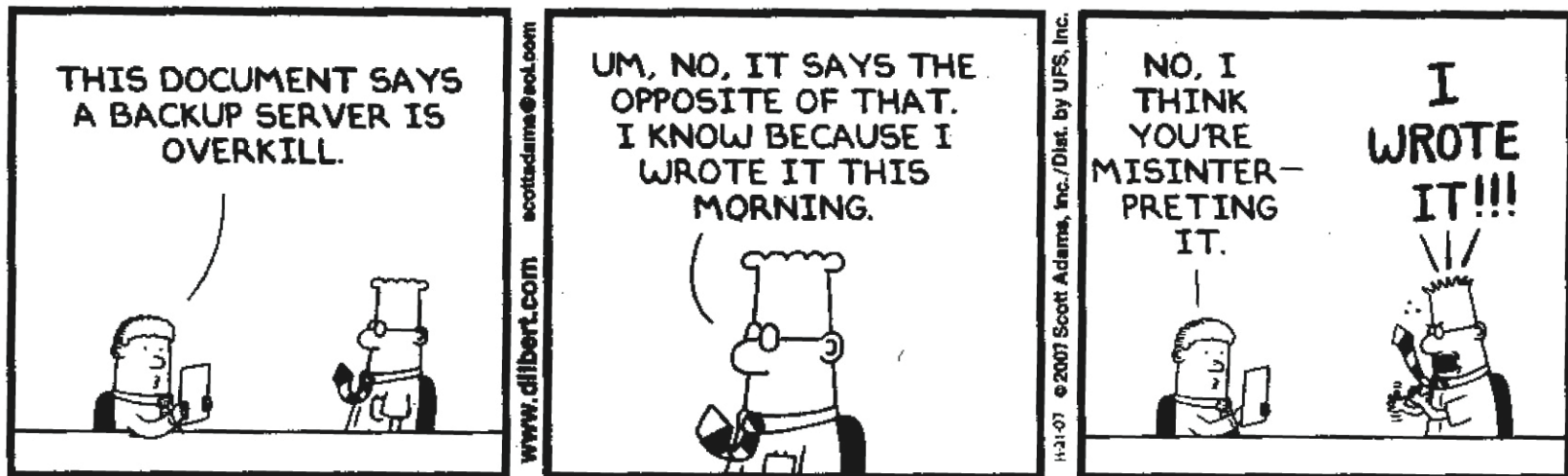
- Use markers.
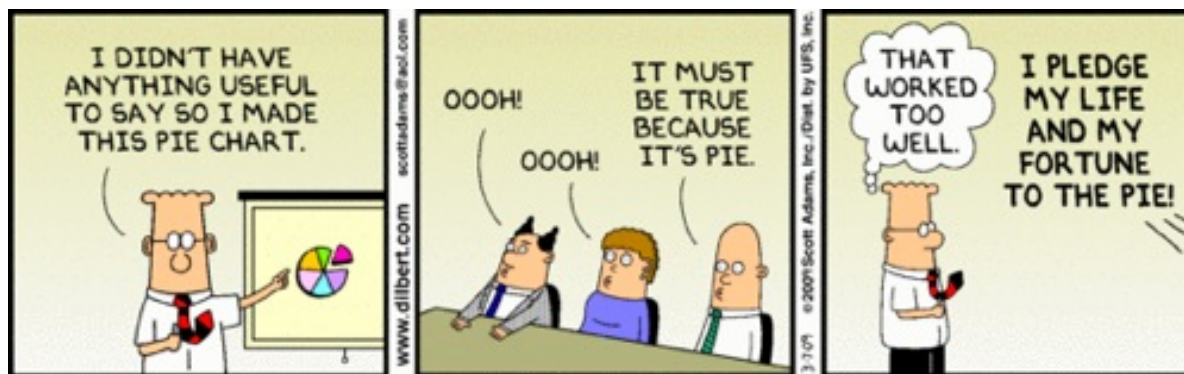
The Editorial Process

- Pass One: Is it complete?

- Pass Two: Is it self-contained?

- Pass Three: It is grounded?

- Pass Four: Is it concise?

- Pass Five: Is it compelling or persuasive?

- Pass Six: Grammar review

- Pass Seven: Proofread

- Pass Eight: Now it's the reviewer's turn!

Questions and Comments

Dilbert by Scott Adams

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ELEMENTS OF EFFECTIVE WRITING
Course One

Writing Exercises

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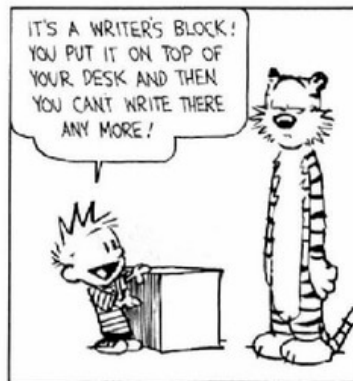

"Is it just me or are these review panels getting a lot tougher?"

EXERCISE 1
Free-flow Writing: A New Way to Write First Drafts

- Choose a topic, an idea, or a question you would like to consider. It can be a specific detail or a broad concept—whatever you are interested in exploring at the moment.

- Write for **10 minutes** on the space below; use the next page and the back of these pages if necessary. Do not stop the flow of your ideas.

- If you get stuck and don't know what to say next, write, "I'm stuck and don't know what to say next . . ." or try asking yourself "what else?" until another idea comes to you.

- Do not concern yourself with spelling, grammar, or punctuation. Your goal is to generate as much as you can about the topic in a short period of time and to get used to the feeling of articulating ideas on the page. It's ok if it's messy or makes sense only to you.

EXERCISE 2
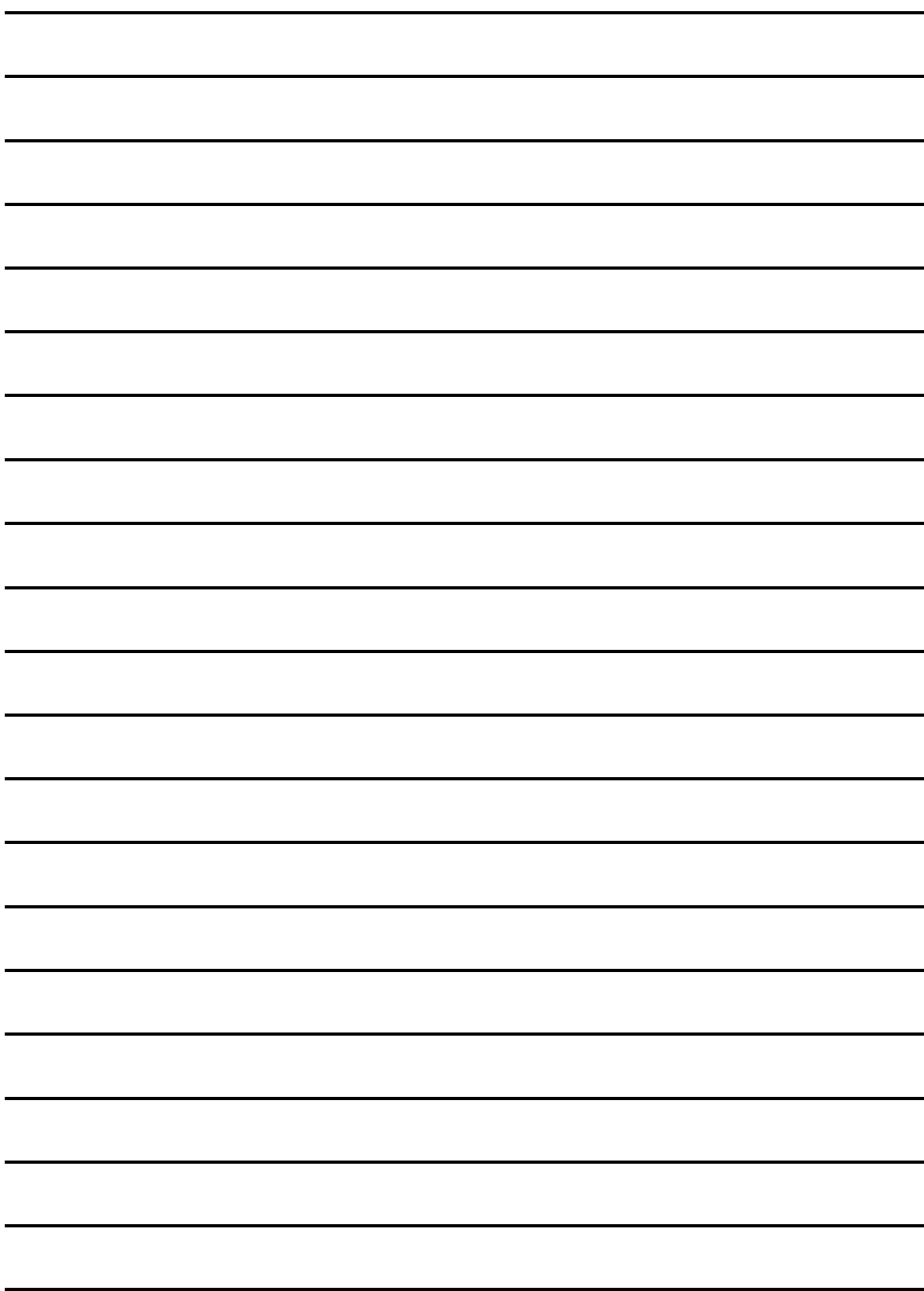**Cohesion**

Read each paragraph set. See if you can find a way to introduce cohesion into the choppy sentence structure.

1. Retirement should be a reward for a lifetime of work. It is widely viewed as a sort of punishment. It is a punishment for growing old.

    _____

    _____

2. In recent years viruses have been shown to cause cancer in chickens. Viruses have also been shown to cause cancer in mice, cats, and even in some primates. Viruses might cause cancer in humans. This is a reasonable hypothesis.

    _____

    _____

    _____

3. The historical sciences have made us very conscious of our past. They have made us conscious of the world as a machine. The machine generates successive events out of foregoing ones. Some scholars tend to look totally backward. They look backward in their interpretation of the human future.

    _____

    _____

    _____

4. For me, the worst thing about waiting tables is the uniform. All the waitresses had to wear this ugly brown striped jumper. The shirts were polyester. Sometimes someone you know comes in. Now I have a job in an office.

    _____

    _____

    _____

EXERCISE 2 (continued)
Cohesion

Read the paragraph below. Is it cohesive? What is its principal issue? How would you fix it? Would you even bother or would you just reject this piece of writing outright?

YES BECAUSE HE NEVER DID A THING LIKE THAT BEFORE AS ASK TO get his breakfast in bed with a couple of eggs since the City arms hotel when he used to be pretending to be laid up with a sick voice doing "his highness" to make himself interesting to old Mrs. Riordan that he thought he had a great leg of and she never left us a farthing all for masses for herself and her soul greatest miser ever was actually afraid to lay out 4d for her methylated spirit telling me all her ailments she had too much old chat in her about politics and earthquakes and the end of the world let us have a bit of fun first God help the world if all the women were her sort down on bathing suits and low-necks of course nobody wanted her to wear I suppose she was pious because no man would look at her twice."

_____

_____

_____

_____

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EXERCISE 3
Clarity

Read each sentence. See if you can find a way to clarify each sentence.

1. It is a matter of the gravest possible importance to the health of anyone with a history of a problem with disease of the heart that he or she should avoid the sort of foods with a high percentage of saturated fats.

_____

_____

_____

_____

2. An evaluation of the procedures needs to be done.

_____

3. NASA continues to work on the International Space Station astronaut living-quarters module development project.

_____

_____

_____

4. There are indications of an issue, but the program manager is aware of them and is taking action to correct it.

_____

_____

_____

5. Strong reading skills are an important factor in students' success in college.

_____

EXERCISE KEY

Elements of Successful Writing
Course 1

EXERCISE 2
Cohesion

1. Retirement should be a reward for a lifetime of work. **Instead**, it is widely viewed as a sort of punishment **for** growing old.

2. In recent years viruses have been shown to cause cancer **not only** in chickens **but also** in mice, cats, and even in some primates. **Therefore**, it is a reasonable hypothesis that viruses might cause cancer in humans.

3. The historical sciences have made us very conscious of our past, **and** of the world as a machine generating successive events out of foregoing ones. **For this reason**, some scholars tend to look totally backward in their interpretation of the human future.

4. For me, the worst thing about waiting tables was the uniform. At the last place I worked, all the waitresses had to wear an ugly brown striped jumper. Underneath it we had to wear an even uglier polyester shirt. Sometimes someone I knew would come in and I'd feel embarrassed by my outfit. Now I have a job in an office, where I can wear my own clothes.

YES, BECAUSE HE NEVER DID A THING LIKE THAT BEFORE, AS ASK TO get his breakfast in bed, with a couple of eggs. Since the City arms hotel, when he used to be pretending to be laid up, with a sick voice. Doing "his highness" to make himself interesting to old Mrs. Riordan, that he thought he had a great leg of. And she never left us a farthing! All for masses for herself and her soul! Greatest miser ever! Was actually afraid to lay out 4d for her methylated spirit. Telling me all her ailments! She had too much old chat in her about politics and earthquakes and the end of the world. Let us have a bit of fun first! God help the world if all the women were her sort. Down on bathing-suits and low-necks that of course nobody wanted her to wear. I suppose she was pious because no man would look at her twice.

EXERCISE 3
Clarity

1. Anyone with a history of heart disease should avoid saturated fats.

   Note: The issue starts off with passive construction: "It is matter of." Next up are too many prepositional phrases that chop up elements, making the sentence hard to read. Note also overstated phrases, such as "matter *of* the gravest possible importance."

2. We must evaluate the procedures.

   Note: This is an example of burying or suppressing verbs. At the heart of every good sentence is a strong, precise verb; the converse is true as well—at the core of most confusing, awkward, or wordy sentences lies a weak verb. Try to put the action of your sentence in the verb rather than burying the action in a noun or blurring it across the entire sentence. Also, be sure to understand how helping verbs actually help. Rather than structure a sentence like "We need to evaluate," use a more active approach, with a real helping verb, crafting instead "We must evaluate."

3. NASA continues to develop the module that will provide living quarters for the astronauts aboard the International Space Station.

   Note: Unless readers are familiar with your terminology (or jargon), avoid using phrases with many consecutive nouns (noun strings). Even if readers comprehend your jargon, do not overuse noun strings, as they bog down prose in general

4. The program manager knows the issue and plans to correct it.

   Note: Improve the clarity of what you write by keeping the action of a sentence clear by using concise, direct verbs.

5. Student success in college depends on effective reading skills.

   Note: Words like "factor, aspect, area, situation, consideration, degree, and case" are vague, all-purpose nouns that contribute little to your prose. When possible, do not use them.